

AMENDMENT AND RESPONSE

Serial Number: 09/132,157

Filing Date: August 11, 1998

Title: SILICON-GERMANIUM DEVICES FOR CMOS FORMED BY ION IMPLANTATION AND SOLID PHASE EPITAXIAL REGROWTH

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wherein the $\text{Si}_{1-x}\text{Ge}_x$ channel region is formed from ion implanting germanium (Ge) through the gate oxide;

wherein the germanium molar fraction is less than about 0.6; and

wherein the $\text{Si}_{1-x}\text{Ge}_x$ channel region has a channel length less than $7\mu\text{m}$.

41. (New) A semiconductor transistor formed on a silicon substrate, comprising:

a $\text{Si}_{1-x}\text{Ge}_x$ channel region, having a germanium molar fraction of x , and formed in the substrate, underneath a gate oxide and between a source region and a drain region without a silicon layer interposed between the $\text{Si}_{1-x}\text{Ge}_x$ channel region and the gate oxide;

wherein the $\text{Si}_{1-x}\text{Ge}_x$ channel region is formed from ion implanting germanium (Ge) into the substrate at a dose of approximately 2×10^{16} atoms/cm², and wherein the Ge is implanted at an energy of approximately 20 to 100 keV;

wherein the germanium molar fraction is less than about 0.6; and

wherein the $\text{Si}_{1-x}\text{Ge}_x$ channel region has a channel length less than $7\mu\text{m}$.

42. (New) The transistor of claim 41, wherein the Ge is dispersed in the substrate to a depth of approximately 100 to 1,000 angstroms.

43. (New) The transistor of claim 41, wherein the Ge is dispersed in the substrate to a depth of approximately 300 angstroms and the germanium molar fraction is less than about 0.4.

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed September 1, 1999, and the references cited therewith.

Claims 38-43 are added. Claims 11-14, 24-32 and 38-43 are now pending in the application.

Applicant respectfully requests reconsideration of the above-identified patent application as amended in view of the following remarks.